

UNPUBLISHED PRELIMINARY DATA

HAWAII INSTITUTE OF GEOPHYSICS
UNIVERSITY OF HAWAII
HONOLULU, HAWAII

6 July 1964

3P. National Aeronautics and Space
Administration
Office of Research Grants and Contracts
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Washington 25, D. C.

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Attention: Code BG

Subject: Semiannual Status Report on NASA
Research Grant NsG-135-61

Gentlemen:

This letter constitutes the sixth semiannual status report of the Airglow and Zodiacal Light research under NASA Grant NsG-135-61. The report covers the period 1 October 1963 to 31 March 1964.

ZODIACAL LIGHT

The zodiacal light observations have continued with a routine program as well as special programs carried out by Dr. Weinberg. These include full-night observations at the local zenith for the purpose of obtaining reliable data on the zodiacal light polarization at large solar elongation angles, and zenith to horizon observations of selected stars for atmospheric extinction measurements. Dr. Weinberg has found that the extinction coefficient is very significantly higher than it was two years ago, presumably as a result of the high-altitude dust produced by the eruption of Agung in Bali in March 1963.

AIRGLOW

Observations:

The airglow observation program has continued during this period with monochromatic all-sky observations at λ 5577, 5893, and 6300, as well as broad-band observations in the region of λ 8000. Absolute photometry of the zenith was carried out at λ 5577, 5893, 6300, and 5300. Observations were obtained for at least 2 hours on 58 nights and 6 hours or more on 46 nights of the 104 scheduled observing nights during this period.

Instrumentation:

After the September observing period the new digital system for the zenith photometer was installed. Some difficulties were initially encountered from

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false triggering of the counting and readout systems from spurious voltage pulses. These difficulties were eventually all tracked down and eliminated and the system is working smoothly now.

During January the new set of interference filters in the zenith photometer was completed. At the end of the March observing period, Dr. Kulkarni carried these filters and the carbon-14 standard light source to the National Bureau of Standards in Boulder for calibration.

Staff:

The East-West Senior Specialists, Dr. Masaaki Huruata and Dr. Franklin Roach, were in residence during this reporting period, as well as Dr. Roach's colleagues, Mr. LeRoi Smith and Mr. Roger Owen. These people have contributed much to the program.

On October 1, 1963, Mrs. Judy Larson joined the program on a half-time basis as a research assistant. On December 1 Mr. Roy Graham joined the Haleakala Observatory staff as a part-time observer and maintenance man. He replaces Mr. Leon Offenhauser who left in May. Mrs. Livian Ogura joined the program on 3 February 1964. She is working full-time at the job of digitizing the airglow records with the aid of the Benson-Lehner OSCAR record reader.

In addition to these persons already mentioned, the following persons have been involved in this program during part or all of this period:

Dr. Jerry Weinberg, senior staff
Dr. P. V. Kulkarni, senior staff
A. T. Kowalski, airglow station chief,
Haleakala Observatory
R. Furukawa, observer
C. Dilley, observer
W. Brown, graduate research assistant
J. Heu, student assistant
W. Steiger, principal investigator

Future Plans:

This report covers the final period of this present grant. During this period a proposal has been submitted to NASA for the continuation of the airglow program for another three years. Initial emphasis will be on the improvement of the instrumentation, but the major emphasis will be on data processing and analysis. The zodiacal light portion of the program will be continued independently by Dr. Weinberg with the support of a separate grant.

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Please do not hesitate to call on us if further information should be needed concerning activities under this grant.

Respectfully submitted,

Walter R. Steiger

Walter R. Steiger
Principal Investigator
Hawaii Institute of Geophysics

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